REMARKS – General

In the Claims

Applicants have amended their claims to define the invention more particularly and distinctly so as to overcome the rejections and define the invention patentability over the cited references.

Applicant submits that no new subject matter has been added.

Claims 1 to 5 were pending prior to the amendments contained herein. These claims are cancelled herein. The Office Action mailed on 03/27/2006 rejected claims 1 to 5 under 35 U.S.C. 112. Claims 1 to 4 were rejected under 35 USC 103(a). The Office Action suggests that old claim 5 has patentable subject matter. Applicant appreciates the detailed office actions provided to applicant over the course of the prosecution of this application.

Claims Rejected Under 35 USC 112

Old claims 1 to 5 were rejected as being indefinite. Applicant submits new claims 6 to 20 and respectfully submits that these claims meet the requirements of 35 USC 112.

Claims Rejected Under 35 USC 103(a)

The Applicants' Invention

The Applicant's invention teaches a method of converting three-dimensional data such as data obtained from a Cartesian coordinate-based magnetic field survey of an area of land, and converting that vector data to a two-dimensional representation. This is done by first converting the Cartesian coordinates obtained from field data to mathematical spherical coordinates. Then a color model is applied to the mathematical spherical coordinates that is analogous to the magnitude and direction of the vector representing the magnetic field. The color model can be overlaid on a two-dimensional map of the same area of land thereby providing a two-dimensional representation of the three-dimensional data collected in the survey. The method is applicable to

other surveys where three-dimensional vectors are used such as hydrology surveys, gravitational surveys and electro-magnetic surveys.

The Office Action rejects Applicant's old claims 1 to 5 as being unpatentable in light of Mueller, Crawfis, Kerekes, Kawasaki and Goyal. These old claims have been cancelled and new claims 6 to 20 added for the Examiner's consideration.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or the references when combined) ***must teach or suggest all the claim limitations***. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991) (Reversed district court holding of obviousness). Any prima facie conclusion of obviousness must be factually supported, and, if not met, the applicant is under no obligation to submit evidence of nonobviousness. With respect, the Applicants submit that these criteria are not met in the Office Action rejections.

The Cited Art

Mueller discloses the gathering of magnetic data that is three-dimensional. Mueller also discloses the visualization of vectors in 2D and in 3D. However, Mueller does not teach the visualization of 3D-based data in two dimensions using color pixelization as disclosed by Applicant.

Kerekes teaches the gathering of seismic data and the representation of this data in three-dimensions. Applicant respectfully submits that Kerekes is not analogous art. The data gathered in the Kerekes documents is caused by seismic movement and is not related to the type of energy measured by Applicant's invention. Therefore, the application of Kerekes does solve Applicant's problem which is the development of a vector orientation visualization method of magnetic and

other energy fields that can be displayed in two-dimensions. Furthermore, Kerekes would clearly not be applicable in an airborne survey environment. Kerekes does speak to the 3D display of seismic data but does not convert that data to 2D using a color-coded pixelization method as claimed by Applicant. Therefore, Applicant submits that Kerekes with Mueller would not disclose nor suggest the elements of Applicant's invention.

Kawasaki teaches an apparatus and method for measuring the magnetic fields of objects emitting such fields such as magnets or electrical equipment. It is a static apparatus and totally unsuited to field measurements of large areas of land. Furthermore, Kawasaki measures the H-field of an object in an X, Y and Z plane but at one plane at a time hence the requirement for such a large structural cage to support the moving measuring device. Finally, Kawasaki does not integrate all three dimensions into a single 2D representation; rather, it takes one plane at a time and then displays this plane in 2D. Kawasaki does convert 3D vector data into a 2D representation but rather takes three individual planes and displays a 2D representation of each of them separately. Therefore, Kawasaki does not disclose the elements of the Applicant's invention and would not do so in combination with Kerekes or Mueller.

Crawfis describes the rendering of 3D scalar fields in weather modeling. For example, the article describes the rendering of the relationship between turbulent flow fields and scalar density fields to show a cause and effect between winds and clouds. The method disclosed in Crawfis takes a vector and color codes it to represent vertical velocity component, direction component and distance from the viewpoint. The intent is to render diagrams which represent wind velocity and cloudiness together in the same image. Crawfis attempts to integrate different data sets together in a meaningful image. It does not attempt to take 3D data and display it in a meaningful 2D format. Therefore, combining Crawfis with any of the previously mentioned documents would not describe or suggest the elements of the Applicant's invention.

Goyal teaches the simulation and modeling of stress and strain of two rigid bodies in contact. Goyal does not disclose the transformation of 3D data into a 2D representation. Therefore combining Goyal with any of the previous documents would not complete Applicant's invention.

Applicants submit that the combined references as suggested by the Office Action do not disclose all of the elements of the Applicants' claims. Furthermore, there appears to be no logical reason for combining Kerekes with any of the cited art because Kerekes is non-analogous art. Additionally, the combined references would not achieve the functionality of Applicant's invention. For these reasons, Applicant state that his claims disclose patentable subject matter that is novel and inventive over the cited references separately and in combination. He respectfully request that the objections to his claims be withdraw and that these claims be allowed.

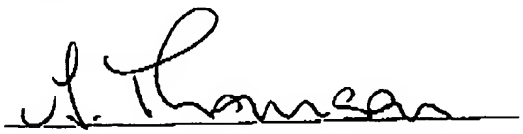
Conclusion

In view of the forgoing amendments and accompanying arguments, Applicants respectfully request allowance of their new claims 6-20.

If there are any matters concerning this application that could be cleared up in a telephone conversation, please contact the undersigned at (250) 418 3250.

The assistance and helpful suggestions set out by the Examiner in this Office Action are greatly appreciated.

Respectfully Submitted:



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